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DEFLECTION OF THE NASAL SEPTUM AND ITS TREATMENT

BY

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Mr. President and Gentlemen of the Medical Society of Virginia:

We are told in Genesis, that, when God made man, it was not into his mouth, but into his *nostrils*, that he breathed the breath of life. The rôle of the nasal chambers as the avenues through which the air reaches the organs of respiration, audition and voice-production, and the disastrous consequences with which the integrity of the latter is menaced from occlusion of their natural atmospheric channels, are too often lost sight of by those, who, unmindful of this truth of scriptural physiology, sum up the varied functions of the nasal apparatus in the terse proposition: The nose is the organ of smell.

The influence of nasal obstruction in the evolution of morbid conditions of the lower respiratory tract and middle ear is at present engaging the attention of special workers throughout the world, and the day is not far distant when the general body of the profession will find in the treatment of pathological states of the nose a prime factor in the therapeutics of throat and aural disease. In view of the importance of this subject, I have therefore thought, that, in replying to your flattering invitation, I could not do better than to ask your attention briefly to one of the more common causes of nasal ob-

struction, and to outline the measures for its relief. Deflection of the nasal septum is a theme which is dispatched in a cursory and unsatisfactory manner in surgical works. Its discussion, therefore, may be entered upon without apology, especially as a recent writer, whose work is extensively used as a text-book, asserts, in connection with deformities of the septum, that "by no surgical treatment can this condition be remedied."*

Changes in the form and direction of the septum are the most common of nasal deformities. So frequent is simple deflection to one side or the other, that, paradoxical as it may seem, we may almost look upon the condition as the natural one. The differences in the direction and form of the external nose depend, to a great extent, upon corresponding peculiarities in the septum, so that when Tennyson sings of the nose, "tip-tilted, like the petal of a flower," it is only the poetical expression of the fact that the septum narium of his heroine was deflected.

The adherence to national or traditional custom is probably the partial explanation of the relative infrequency with which asymmetrical positions of the septum are encountered among different races of the earth. The beautiful form of the Caucassian nose has been attributed to the careful manipulation of nurses, and we are told, that in Persia, the eunuchs, who had charge of the royal offspring, were accustomed to introduce tubuli into their nostrils to preserve that symmetry of the organ which was essential to him who aspired to the throne.

Acquired malpositions of the septum are most commonly met with in youth and manhood, and are more frequently observed in males than in females, as the former are more exposed to the accidents by which they are produced. They also occur as the natural result of the changes in the skeleton of the face, which accompany the processes of old age. The occasional appearance of the same deformity in a number of individuals of the same family, would lead to a belief in an inherited proclivity to deflection, upon the speculative explanation of which I do not purpose at present to trench.†

Excessive development or malposition of the septum may be *congenital* or *acquired*; in the latter case, it is either the direct or indirect result of a *traumatism*, or it may occur as the sequel of a *pathological* process. Under the first head may be included, perhaps, for practical purposes, asymmetrical conditions of the bony and, consequently, cartilaginous framework which accompany or follow irregularities in the embryological evolution of the nasal chambers and their dividing partition.

* Bryant—Ed. 1881.

† I have also noticed this inherited peculiarity in connexion with anomalies of the turbinated bones.

Morgagni,* who, as he tells us, was "very much versed in this part of anatomy," thought that the more rapid growth of the septum itself, as compared with that of the other bones of the "upper jaw," must be reckoned among the causes of the malformation, and elongation in its vertical diameter has been insisted on by subsequent observers as provocative of the same result. Undue arching of the palatine process of the superior maxilla, and a diminution, therefore, of the vertical diameter of the corresponding nasal fossa (Duplay†), as well as other asymmetrical conditions of the nasal chambers and accessory cavities, furnish the explanation of the malposition in a certain number of cases. These asymmetrical states are usually associated with imperfect development of the corresponding side of the skull, and may be the result of a teratological process, or due to the operation of accidental causes. They have been found, for example, in the embryo (Fox‡), and occur in connexion with the imperfect cerebral development of idiots, and Dr. Ziem,§ of Hamburg, in an interesting article, has shown, experimentally, that, in certain cases, nasal disease itself may be an important factor in the production of asymmetrical conditions of the cranium. I have referred thus particularly to asymmetry of the nasal chambers, because I believe that its more careful study will throw much light upon the origin of septal deflections.

Among the causes of acquired deflection, the most frequent is doubtless traumatism. Blows, falls, etc., especially in early life, when the parts are softer, more pliable, and therefore more liable to displacement, are responsible for a large proportion of the cases met with in practice. Dislocation of the individual parts of the septum, fracture of the cartilage or bone, or both, occur, of course, in depressed fractures of the nasal bones, and few accidents are more difficult to treat than a septum thus broken after union has taken place without proper reduction of the fragments. The vomer is not often broken, since, as Hamilton‖ justly observes, the concussion rarely reaches it, the force of the blow expending itself on the cartilage or perpendicular plate. Fracture and displacement of the cartilaginous septum are by far the most common, the character of the displacement depending upon the direction and force of the blow.

It is possible that injury to the nose, and consequent deflection of the septum, may occur during difficult parturition, and

* De Sedibus et causis morborum. I. XIV, 16.

† Vide Follin, et Duplay, Pathologie Externe. T, III, p. 850.

‡ Mittheilungen aus d. embryologisch. Institut. in Wien. 4 Heft, 1880.

§ Monatsschift für Ohrenheilkunde, etc., Nos. 2, 3, 4, and 5. 1883.

‖ Treat. on Fractures and Dislocations, Phila., 1880, p. 107.

it is also conceivable that the habit of introducing the finger into the nose, as suggested by Quelmalzius, Cloquet, and others, may lead to displacement of the cartilage, but this, as well as the use of the hand in cleansing the organ (Béclard), must be looked upon as infrequent causes of the deformity.

Tumors of the nasal and accessory cavities, excessive hypertrophic states of the turbinated bones, and other irregularities in the conformation of the outer nasal wall, occasionally act as mechanical causes of the deflection.

Diathetic diseases (rickets, syphilis, congenital and acquired osteomalacia, etc.,) may, by involving the nasal bones, lead to malposition of the septum.

About the middle of the last century, Quelmalzius, of Leipsic, published a brief, but interesting dissertation,* in which, among some of the now commonly recognized causes of malposition of the septum, he adds the constant use of sternutatories and astringents. These bring about deflection, thought the learned professor, by contracting and making rigid the pores of the vessels, and therefore drying of the membrane, with consequent incurvation of the underlying septum—a process which he furthermore compared to the incurvation of the freshly-written side of a sheet of paper when held before the stove to dry.

The deformity may consist either in simple deflection to right or left, in which case the inclination is generally confined to the cartilaginous, and anterior part of the bony septum, deflection of the posterior third of the vomer being exceedingly rare; or the septum may be bent in a more or less sigmoid curve, or flexed in an angular manner. Not infrequently it is inclined neither to one side nor the other, but presents, usually in its bony portion, but sometimes at the junction of the cartilage with the vomer and ethmoid, an oblique, rounded, bony ridge, which produces more or less occlusion of the nostril, into which it projects. The opposite surface of the septum, corresponding to that of the anomaly is usually concave. This form of septum, which has been carefully studied by Zuckerkandl,† (who found it 107 times out of 370 skulls) did not escape the acute observation of Morgagni,‡ who was the first to describe it.

The deflection may affect the septum as a whole, or may be limited to the cartilage, the perpendicular plate of the ethmoid, or the vomer. In the latter case, it generally takes place at the junction of the latter with the cartilaginous septum, and the condition of the latter, according to Harrison Allen,§ is one of

* Programma de Narium earumque Septi Incurvatione. Lipsiae, 1750, p. 7.

† Normale u. Path. Anat. der Nasenhöle, etc., Wien, 1882, S. 48.

‡ Loc. cit.

§ American Journal Med. Sc., Jan., 1880, p. 71.

hyperostosis of the sutural line. A very common point of irregularity in the vomer is along its inferior edge, in the neighborhood of the nasal spine, where it is associated with a similar projection of the cartilage, the two together forming a more or less wedge-shaped process, whose apex lies across the floor of the lower meatus. Loewenberg,* who has made a number of sections through the vomer and cartilage at this point, calls attention to the fact, that the spurs which are commonly seen along the lower edge of the vomer anteriorly at its junction with the cartilage, proceed from the bony and cartilaginous parts not being in the same vertical plane, but joining at a dihedral angle, projecting toward one side. The projection is here formed, on the one hand by the lip of the vomer, and on the other by the insertion of the cartilaginous portion.

Occasionally an S-shaped incurvation from above, downward, of the bony septum is seen, in which both the vomer and perpendicular plate are concerned. The posterior edge of the vomer is very rarely deflected. A remarkable case of this kind where the nasopharynx was divided into two lateral halves is recorded by me in the Archives of Laryngology (July, 1883).

By far the most common seat of deflection, however (and the one which most frequently calls for treatment), is the cartilaginous septum, which presents a great variety of irregularities and abnormal positions. The principal are: 1. Simple bulging on one side, and concavity on the other; the smooth, rounded dome of the deflected portion occluding the nostril of that side, and giving to the eye the impression of apolypus. 2. Wedge-shaped projections; the upper border of the wedge projecting into the obstructed nostril, or running either in an antero-posterior or vertical direction. The opposite side of the cartilage may or may not show a corresponding depression. 3. Spurs of the inferior border, either confined to the anterior portion, or running the whole length of the cartilaginous septum. These are often associated with a depression of the septum above them, which bulges into the fossa of the opposite side. 4. Angular or nodular growths of the cartilage, of varying size and appearance, often extremely vascular, which may be looked upon rather as cartilaginous tumors than as true deflections. 5. S-shaped incurvation, producing obstruction of one nostril anteriorly, and of the other posteriorly. 6. Lateral deviation of the lower border, the upper portion remaining straight.

It would carry me far beyond the limits of this paper to discuss the varied symptoms of deflection of the nasal septum. They are so intimately blended with those of the conditions

* Archives of Otology, March, 1883.

which complicate it, that their explication would involve a systematic review of the clinical history of the common diseases of the nose, throat and ear. I shall content myself, therefore, with simply indicating the pathological processes which follow as the natural results of the deflection. Although the complications to which it gives rise were partially recognized by some of the earlier writers, it is only within a comparatively recent period that its pathological importance has been fully appreciated, and that only by a few whose special studies have led them to the full recognition of its sequels. Many an aural catarrh has been allowed to culminate in hopeless deafness, many a nasolaryngeal inflammation has become inveterate and incurable from failure to recognize the evils which result therefrom; and were the statistics of such cases carefully compiled, they would appear to many of you in the form of a revelation. So important is their relationship, that it is my invariable rule to begin the examination of the throat and ear with an exploration of the nasal fossæ and retro-nasal space.

In the first place, then, a deflected septum means a more or less occluded nostril, with a corresponding abnormal increase in the capacity of its fellow. Observe:

It is not only that one nostril is obstructed, the other remaining normal and becoming the vicarious channel through which respiration is accomplished; the anatomical relations of both are changed. In the one case, narrowing of the nasal passage results; in the other, abnormal dilatation of its cavity. The evils to which the former give rise may be referred to two classes of effect, viz: to the results of pressure and to those of mechanical obstruction. The former lead to atrophy, dislocation, or ulceration of the opposing structures. It is easy to conceive how this may happen, and that this is precisely what occurs is readily demonstrable by dissection.

Obstruction of the nostril is equivalent to interruption of its functions as an organ of respiration, olfaction, audition, and voice-production, and the phenomena to which it gives rise will depend, of course, upon the anatomical seat of the obstruction and the physiological properties of the structures that assist in its production. Apart from the destruction of function which it involves, catarrhal inflammation of the naso-pharyngeal membrane is the result, as a consequence of the partial vacuum created in the posterior portion of the nostril behind the seat of obstruction. (Andrew Smith.*) My experience is, that long-standing occlusion of the nostril from deflected septum is always associated with hypertrophic catarrhal condi-

* N. Y. Med. Record, Aug., 1881, p. 147.

tions of the turbinated bodies and the mucous covering of the septum behind the deflected portion. This becomes the starting point of inflammatory disease of the lower air-passages and middle ear. Inflammation of the former occurs either as the result of mouth-breathing and direct extension, or, as I have pointed out elsewhere,* may be the outcome of the constant hyperæmia induced by reflex nasal irritation, the vessel dilatation being kept up by the prolonged stimulation of the reflex centres from chronic nasal inflammation. In the same way, I believe that reflected irritation from the turbinated tissues of the nose may react upon the circulation and nutrition of the aural chambers. I have recently called attention† to this reflex agency of the vaso-motor and trophic nerves in the production of middle-ear disease, to the recognition of which I was led by the accidental production of symptoms referable to the ear (such as tinnitus, pain, stoppage, etc.) during operative procedures in the nose. Although my experiments upon this point have as yet taken no definite form, it is quite possible that the aural affection in these cases may find its explanation in pathological conditions of the reflex sensitive area which I have shown to exist in the nasal mucous membrane.‡ At least, in several cases I have succeeded in reproducing them by artificial stimulation of this area. This is a fact of considerable practical importance in the solution of many obscure and intractable cases of middle-ear disease whose etiology has been heretofore unrecognized.

It is a familiar clinical fact that, other things being equal, detention and decomposition of the secretion is more likely to occur in an abnormally dilated nostril than in one in which the normal anatomical relations of the structures are preserved. This is readily explicable by the altered physical conditions which abnormal widening of the nasal cavities involves. The greater the calibre of the passage, the feebler the expiratory current of air, and the more difficult, therefore, the voluntary removal of secretion. Imperfect ventilation and stagnation of the air in the nasal chambers follows, too, diminution in the force and rapidity of the inspiratory stream; the cold, dry air, ladened with impurities, diffuses itself in the spacious compartment, in contact with a membrane whose functions are often suspended by disease, and, accordingly, incapable of fulfilling its physiological destiny in the processes of normal respiration. Thus, to retained and decomposing secretion, is

* On Nasal Cough and the Existence of a Sensitive Reflex Area in the Nose. American Journal Med. Sc., July, 1883.

† Trans. Medico-Chirurg. Fac. of Maryland, 1883, and Trans. American Laryngological Association, 1883

‡ Am. Jour. Med. Sc., Loc. Cit.

added an unfiltered, vitiated atmosphere, and the conditions are established which favor putrescence and the consequent development of ozæna.

Diagnosis.—Surgeons, from time immemorial, have committed the error of classifying the bony protuberances, so often met with in the nostrils, as exostoses. In point of fact, and in view of recent anatomical investigations, exostoses in the nasal passages are very rare, the vast majority of these growths being referable either to deflection or dislocation of the septum, or enlargement of one or more of the turbinated bones. Deflection, with bulging of the septum, has also been mistaken by competent observers for polypus; but if the nose be examined properly, there is no occasion for such a mistake. Hypertrophy of the tissues overlying the septum, may also simulate deflection, and lead to errors in diagnosis.

Treatment.—From the foregoing it is sufficiently obvious that the rational treatment will vary with the nature and situation of the deflection. Formerly, when the dependence of buccal respiration and its sequels upon morbid states of the nose was unrecognized, the mouth-breather laid him down to rest with his lower jaw swung in steel or rubber springs affixed to his night cap, or when that ornate appendage failed to work, a sponge was so suspended over the sufferer that his parched throat might receive the drippings of the water with which it was saturated—a mode of procedure which recalls the terrors of the Inquisition.

Localized spurs and projections are best removed with the galvano-cautery, or the knife, or preferably, when their form permits it, with the cold-wire snare, the growth being seized with forceps and the wire passed over them; or still better, by previously transfixing them with a glover's needle, as suggested by Dr. Jarvis,* of New York. Compression should be made slowly, to prevent hemorrhage, which in some cases is otherwise excessive. The wound, which heals, as a rule, slowly, should be treated on ordinary surgical principles. I generally use a dressing of iodoform and boracic acid. A number of other operations have been proposed for these localized deflections of the cartilage. Thus Dieffenbach† recommended excision of the posterior and middle part of the cartilaginous septum; Heylen‡ loosened the mucous membrane from the convexity of the prominence, and severed the redundant cartilage with scissors, an operation which was subsequently modified by Chassaignac.§ This surgeon, after making an incision

* Archives of Laryngology, Oct., 1872, vol. i, p. 44.

† Die Operative Chirurgie, Leipzig, 1845, I Bd.

‡ Annales de la Soc. de Med. d'Anvers, Gaz. Med., 1847, p. 815.

§ Gaz. des Hop., 1851, p. 420.

in the mucous membrane, and separating it from the cartilage with a spatula, made several cuts into the cartilage, and when sufficiently supple, replaced it, and kept it in position by by means of a conical sponge. A further modification of the operation of resection is that proposed by Dr. Ingals,* of Chicago. An incision is made through the obstructing portion from its upper to its outer angle, care being taken not to cut through the mucous membrane of the opposite nostril. Another incision, commencing at the same point, is then made along the inner border, from above, downwards. The cartilage is then seized by its upper angle and cut off, and the mucous membrane drawn down and stitched together. The septum is kept in position by cotton plugs. Dr. Ingals suggests that the after treatment would be more easily carried out if the cartilage were broken or incised at its upper part, to destroy its resiliency.

In a case of aggravated deflection, Demarquay† obtained a "perfect cure" by exposing the deflected portion by an incision through the lateral cartilage and ala, resecting the obstruction and bringing the parts together by means of sutures.

The displacement of the cartilage, which results from injury, will often tax the skill and ingenuity of the surgeon. An interesting and instructive case of this kind is related by Hamilton.‡

Up to within a few years ago the operation for lateral deviation of the cartilaginous septum which was most frequently performed was that known as Adams,§ which consists in bringing the septum forcibly into the median line with forceps and holding it in position by metallic plates in both nostrils, which, after three days, are replaced by ivory plugs. The success of this operation depends upon the destruction of the resiliency of the cartilage. The original forceps of Adams have been variously modified by Weir,‖ Ingals ¶ and others, and Jurasz,** of Heildelburg, has modified the operation by using an instrument in which forceps and compressing plates are combined, according to a principle which reminds one strongly of the polypus forceps of Charles Bell.†† As has already been mentioned, one of the main things to be aimed at in the restoration of the septum to its natural position is the destruction of its resiliency. This

* Archives of Laryngology, Oct., 1882.

† Gaz. des Hop., 1859, p. 470.

‡ Op. cit., p. 108.

§ Brit. Med. Journal, Oct. 2, 1875.

‖ Med. Record, March 13, 1880, p. 279.

¶ Chicago Med. Journal and Examiner, Aug., 1883.

** Berlin Klin. Wochenschrift, No. 4. 1882. S. 49.

†† Operative Surgery, Hartford, 1812, vol. 1, p. 152.

is not always possible in Adams' operation and its modifications, and fracture, of the cartilage is often necessary in order to overcome this difficulty. The operation which accomplishes this purpose most satisfactorily is that which is generally known as "Steele's,"* and which has been recently brought before the profession by Dr. Glasgow,† of St. Louis. It consists in making a stellate incision through the mucous membrane and cartilage, replacing the divided septum and holding it in position by plugs. The instrument used is a heavy forceps, whose blades are united after the manner of the obstetrical, to facilitate removal and introduction. The cutting blade, which is provided with knives set in a stellar form, is introduced, covered by a shield, into the unobstructed nostril, and the shield withdrawn; the second blade is then passed into the opposite nostril, the two locked, and the cartilage divided. The septum is then forcibly replaced and held in position by ivory or ebony plugs.

It is generally supposed that the principle of this operation originated with Dr. Steele, a surgeon of St. Louis. That honor, however, is due to a Virginian, Dr. James Bolton, of Richmond, who, eleven years before the appearance of Steele's article, described his procedure in the Richmond *Medical Journal*.‡ A boy of seven years fell from a height, and sustained a fracture with displacement of the cartilage and vomer. Dr. B. says:

"After much reflection I devised the following operation: Having procured a pair of common button-hole scissors, I filed out the notches so as to make them much deeper and longer. I then procured a pair of dentist's cutting pliers; the position of the blades of these instruments are, of course, at right angles to each other. Having anæsthetised the child with chloroform, I opened the scissors and passed a blade into each nostril, entirely across the displaced portion of the septum. I then closed the scissors firmly, cutting through the septum horizontally. I then inclined the handles of the scissors upward and then downward, cutting through the septum each time obliquely to the first incision. The notches in the blades included between them the lower portion of the triangular cartilage. Thus the latter escaped cutting and contusion.

"The dentist's cutting-pliers were then introduced in a similar manner, and the septum was cut across in a vertical direction.

"In this manner about eight triangular flaps were formed,

*St. Louis Courier of Med., May, 1879.

† Archives of Laryngology, Jan., 1882.

‡ Vol. V, April, 1868, p. 241.

having their apices at the centre of the displaced portion, and their bases at its circumference. I then passed in a pair of broad forceps, and seizing each triangle in succession fractured it at its base.

"I had no difficulty then in replacing the fragments, which I kept in position by cramming gently each nostril with lint. This dressing was continued about three weeks, when the cure was found to be complete.

"Since the treatment of this case two similar ones have been treated by me in a similar manner, and with a like result."

This operation, which is the most ingenious yet proposed for the rectification of this class of deformities, should, therefore, be known as "Bolton's." Steele's procedure is an easier way of performing, and an undoubted improvement on the method of Bolton, of which, however, it is only a modification.

After all operations of this class the septum must be held in the median line from five to ten days after the operation. Various forms of plug have been recommended—ivory, ebony, gutta percha, hard rubber, etc. Of these, the gutta percha are probably the best. They must be made to suit the requirements of individual cases. I have had them perforated to admit of easy respiration. Another method of keeping the cartilage in position, which I would suggest to you, is by means of small rubber bags, introduced into each nostril and then inflated. The pressure here is uniform, and there is less danger of the irritation which other forms of plug sometimes occasion. The bags may be mounted on a central canula, if necessary, after the manner of the well-known rubber nasal tampon for epistaxis.

In passing to the management of deflection of the bony septum, let me say one word in regard to the operation of perforation of the cartilaginous septum by means of the punch. This method, first performed by Blandin,* consists in connecting the two nostrils by punching out a portion of the cartilage with a forceps devised for the purpose, resembling a ticket-punch.† The opening thus made may, furthermore, be enlarged by cutting the cartilage with a knife or scissors. Apart from the creation of a condition which disturbs the physiological relations of the air-current, the tendency to scabbing, and the difficulty of thoroughly cleansing the nostril after the operation, this procedure must be looked upon as at best only a pal-

* Compend. de Chirurgie, vol. III, p. 33.

† This instrument has been variously modified by Rupprecht (Wien. Med. Wochenschrift, 1868, p. 1157), Roberts (Med. News, Phila., 1882, p. 295), and others.

liative measure, the anatomical relations of the nostril behind the obstruction, and hence the most disagreeable feature of the case, remaining the same, and the corresponding nostril deprived of its natural functions. It is only, therefore, in exceptional cases, where other operative procedures are contra-indicated or impossible, that this operation will be called for.

The large majority of deflections of the septum which you will be called upon to treat are anterior and confined to the cartilaginous portion. Cases, however, not infrequently present themselves where the nasal obstruction is due to errors in the conformation of the bony frame-work. When deflection takes place at or near the lower border of the vomer, occlusion of the corresponding inferior meatus results, and the nostril ceases to functionate as an organ of respiration. The general counsel of the more conservative is to let such deviations severely alone, allowing nature to deal with the case as best she may; whilst others, less reliant on the omnipotence of unaided natural processes, prefer to drill away the obstructing portion with the revolving burr of the dental engine or remove it with the metacarpal saw. Burrs, which should be protected by a shield, are used, of different sizes and shapes, according to the nature of the deflection. Contrary to what might be expected from such an apparently formidable operation, this procedure is attended with comparatively little pain, and no troublesome after-effects have been reported. If the psychical impressions and voluntary movements of the patient can be controlled, it is better, therefore, not to resort to anæsthesia. Whilst the results obtained in these cases are doubtless excellent, the disadvantages of the procedures themselves, when the deflection of the bony system is situated far back, are sufficiently obvious. Cases of this kind now and then arise, when the patient will not submit to the operation, or the surgeon, from the nature of the deflection, hesitates to perform it.

In the course of some remarks made at the last annual meeting of your Society, I proposed as a substitute for the operation on the septum in certain cases, especially when the deflection occurred in the deeper portions of the nostril, the removal of the inferior turbinated body of the *obstructed* side. This proposition I have since carried out in the following case, whose history I give in brief:

W. R., æt. 26, blacksmith, applied last spring at my clinic at the hospital, suffering from obstructed nasal respiration of six years' duration. This had led, among other things, to chronic catarrhal laryngitis, otitis media and hyperthropic nasal catarrh. The latter had involved principally the inferior turbinated bodies, each of which presented at its posterior ex-

tremity a moderately large hypertrophy. That on the right side was sufficiently great to produce occlusion of the lower meatus, and preclude respiration through that side. The growth of the left nostril was not developed enough to interfere of itself with the passage of air, but this was completely prevented by deflection of the bony septum. The deviation consisted in an irregular bulging outward of the inferior edge of the vomer, and which extended more than half the length of the bone, and which, with the turbinated structure opposite, produced complete obstruction of the nostril. There was also an irregularly rounded deviation of the cartilage at its insertion into the bony septum.

Owing to the extreme narrowness of the nostril, the small canula and wire were carried with considerable difficulty past the obstruction. After its passage was accomplished, the wire was made to encircle the small hypertorphy on the posterior extremity of the inferior turbinated bone, and slowly screwed home until the resistance was very great, and it was certain that slipping of the wire was impossible. The mucous membrane, with its underlying cavernous body, was then stripped or torn away from behind, forwards, the wound reaching to the anterior end of the turbinated structure. Contrary to expectation, there was scarcely any hemorrhage, and the patient declared that the pain was trifling in character. Secondary hemorrhage occurred during the afternoon, but was trifling in amount, and easily checked by the patient himself. Relief was immediate. In a few days cicatrization was complete, and patency of the nostril secured through contraction of the divided tissue. The posterior hypertorphy of the right side was removed at a subsequent sitting with the snare. Rapid improvement followed the restoration of the breathing to its natural channels.

There is still another class of case which will come to your notice, to which attention has been called by Dr. Delavan, of New York.* In his admirable paper, Dr. Delavan has shown that hypertrophy of the turbinated bones, especially the middle, frequently coëxists with deflection of the nasal septum, the turbinated hypertrophy corresponding to the concave surface of the deflected portion. He accordingly suggests that the proper thing to do in these cases is to remove the middle turbinated bone of the *unobstructed* nostril before resorting to the operation for the straightening of the septum itself.

I cannot more fittingly close these remarks than by com-

* Archives of Laryngology, July, 1882.

mending to you the words of the great anatomist of Padua: "Let surgeons take care," says he, "lest in examining into and curing the hidden diseases of the nose, they also believe that to be always from the present disease, which is often owing to another cause, or perhaps is so from nature itself; and in like manner, let them not always expect to find an equal quantity of space in one cavity of the nose as in the other; nor be deceived by those who, not having attended to this variety, absolutely say that the nose is divided into two large, equal cavities by a septum lying between."*

* Morgagni, loc. cit.